

6202.0 - Labour Force, Australia, Mar 2009

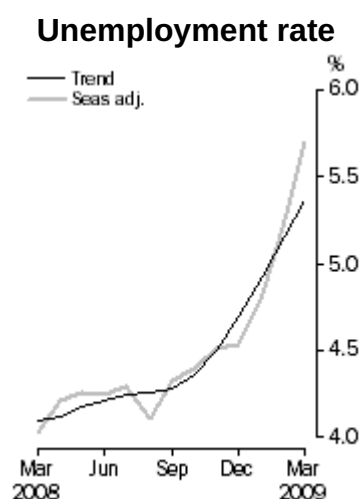
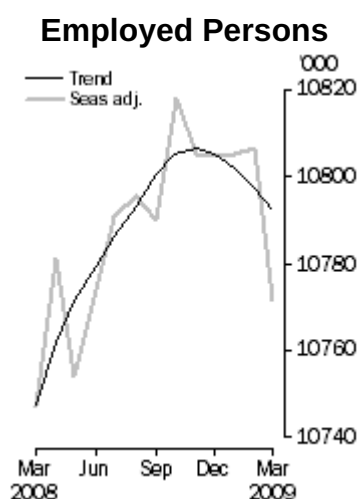
Previous ISSUE Released at 11:30 AM (CANBERRA TIME) 09/04/2009

Summary

Main Features

MARCH KEY FIGURES

	Feb 2009	Mar 2009	Feb 09 to Mar 09	Mar 08 to Mar 09
Trend				
Employed persons ('000)	10 797.2	10 792.3	-5.0	0.4%
Unemployed persons ('000)	588.1	612.8	24.7	33.3%
Unemployment rate (%)	5.2	5.4	0.2pts	1.3pts
Participation rate (%)	65.4	65.5	0.0pts	0.0pts
Seasonally Adjusted				
Employed persons ('000)	10 806.5	10 771.8	-34.7	0.2%
Unemployed persons ('000)	598.0	650.9	52.9	44.3%
Unemployment rate (%)	5.2	5.7	0.5pts	1.7pts
Participation rate (%)	65.5	65.5	0.0pts	0.1pts



MARCH KEY POINTS

TREND ESTIMATES (MONTHLY CHANGE)

- EMPLOYMENT decreased to 10,792,300
- UNEMPLOYMENT increased to 612,800
- UNEMPLOYMENT RATE increased to 5.4%

- PARTICIPATION RATE increased to 65.5%

SEASONALLY ADJUSTED ESTIMATES (MONTHLY CHANGE)

EMPLOYMENT

- decreased by 34,700 to 10,771,800. Full-time employment decreased by 38,900 to 7,621,300 and part-time employment increased by 4,200 to 3,150,500.

UNEMPLOYMENT

- increased by 52,900 to 650,900. The number of persons looking for full-time work increased by 28,500 to 460,400 and the number of persons looking for part-time work increased by 24,300 to 190,500.

UNEMPLOYMENT RATE

- increased by 0.5 percentage points to 5.7%. The male unemployment rate increased by 0.5 percentage points to 5.7%, and the female unemployment rate increased by 0.4 percentage points to 5.7%.

PARTICIPATION RATE

- remained steady at 65.5%.

NOTES

FORTHCOMING ISSUES

ISSUE

April 2009
May 2009
June 2009
July 2009
August 2009
September 2009

Release Date

7 May 2009
11 June 2009
9 July 2009
6 August 2009
10 September 2009
8 October 2009

LABOUR FORCE SURVEY REGIONS

Labour Force Survey (LFS) Statistical Region boundaries are revised every five years at each LFS sample redesign, following the availability of data from the Census of Population and Housing.

LFS regional estimates are produced based on the 2006 LFS Statistical Regions. A Feature

Article on LFS regions will be published in the July 2009 issue of **Australian Labour Market Statistics** (cat. no. 6105.0). This article will include:

- Labour Force Region Maps; and
- Statistical Local Areas to Labour Force Regions Concordance.

ROUNDING

Estimates of monthly change shown on the front cover have been calculated using unrounded estimates, and may be different from, but are more accurate than, movements obtained from the rounded estimates. The graphs on the front cover also depict unrounded estimates.

SAMPLING ERRORS

The estimates in this publication are based on a sample survey. Because the entire population is not enumerated, the published estimates and the movements derived from them are subject to sampling variability. Standard errors give a measure of this variability and appear on pages 30 and 31.

The 95% confidence intervals below provide another way of looking at the variability inherent in estimates from sample surveys. The interval bounded by the two limits is the 95% confidence interval, which represents a 95% chance that the true value of the estimate lies within that interval.

Movements in seasonally adjusted series between February and March 2009

	Monthly change	95% Confidence interval		
Total Employment	-34 700	-95 300	to	25 900
Total Unemployment	52 900	14 700	to	91 100
Unemployment rate	0.5 pts	0.1 pts	to	0.9 pts
Participation rate	0.0 pts	-0.4 pts	to	0.4 pts

INQUIRIES

For further information about these and related statistics, contact the National Information and Referral Service on 1300 135 070 or Mary Piechowski on Canberra (02) 6252 6525.

Forthcoming Changes

FORTHCOMING CHANGES

GROSS FLOWS

The April 2009 issue of **Labour Force, Australia** (cat. no. 6202.0) will include a gross flows

table and, on the website, detailed data will be available in the data cube **GM1 - Labour Force Status and Gross Changes (flows) by Sex, State, Age** currently released in **Labour Force, Australia, Detailed - Electronic Delivery** (cat. no. 6291.0.55.001). Information on gross flows is included in this publication in the article **Understanding Movements in Employment** (see pages 4 to 7).

HISTORICAL TIMESERIES

The first issue of **Labour Force Historical Timeseries, Australia** (cat. no. 6204.0.55.001) contains Labour Force Survey (LFS) time series estimates for the period 1966 to 1984.

A second issue of this historical publication will be released on 4 May 2009, containing spreadsheets and data cubes with superseded Industry, Occupation and Regional classifications from the following monthly and quarterly LFS publications:

Monthly publication

Labour Force, Australia, Detailed - Electronic Delivery (cat. no. 6291.0.55.001)

Labour Force

- Sep 1987 to Oct 2007: Table 16a
- Apr 1991 to Mar 2001: LM4_apr91 and LM5_apr91
- Sep 1992 to Aug 1997: RM1_sep92
- Sep 1997 to Oct 2007: RM1_sep97

Unemployed

- Sep 1992 to Aug 1997: RM2_sep92
- Sep 1997 to Oct 2007: RM2_sep97 and RM3_sep97

Not in the Labour Force

- Feb 1978 to Mar 2001: NM1_feb78

Quarterly publication

Labour Force, Australia, Detailed, Quarterly (cat. no. 6291.0.55.003)

Employed

- Feb 1978 to Mar 2001: E01_feb78
- Nov 1984 to May 1994: E03_nov84, E05_nov84, E06_nov84 and E12_nov84
- Aug 1986 to May 1996: Table 07a, Table 12a, E07_aug86, E08_aug86, E09_aug86 and E13_aug86
- Aug 1994 to Aug 1997: RQ1_aug94
- Aug 1996 to Aug 1997: RQ2_aug96
- Nov 1997 to Aug 2007: RQ1_nov97 and RQ2_nov97

Unemployed

- Apr 1986 to Mar 2001: UQ1_apr86
- Aug 1986 to Jul 1996: UQ3_aug86
- Aug 1994 to Mar 2001: UQ2_aug94
- Aug 1996 to Mar 2001 UQ3_aug96

Understanding movements in employment

UNDERSTANDING MOVEMENTS IN EMPLOYMENT

INTRODUCTION

The recent economic downturn in Australia has prompted additional interest in understanding movements in Australia's labour force, in particular the movement between full-time and part-time employment, and people moving into and out of the labour force. This article explains the difference between full-time and part-time employment and how to use gross flows figures to assist in understanding labour force movements.

For detailed descriptions on all terms used in this article refer to **Labour Statistics: Concepts, Sources and Methods, April 2007** (cat. no. 6102.0.55.001).

EMPLOYMENT

In Australia's labour force, the number of employed persons is defined as the number of persons employed full-time together with the number of persons employed part-time. Therefore, the total number of employed persons is driven by movements in full-time and part-time employment.

Classification of employment as either full-time employment or part-time employment is derived in terms of usual hours worked in a typical period rather than to a specified reference period. The concept of usual hours applies both to persons at work and to persons temporarily absent from work, and is defined as the hours worked during a typical week or day. Actual hours worked (for a specific reference period) may differ from usual hours worked due to illness, vacation, strike, overtime work, a change of job or similar reasons.

Full-time employment

A person is classified to be employed full-time if they:

- usually work 35 hours or more per week in all jobs; or
- although usually working less than 35 hours a week, actually worked 35 hours or more during the reference week.

Part-time employment

A person is classified to part-time employment if they usually work less than 35 hours per week, and either did so during the reference week, or were not at work in the reference week.

COMPARABILITY OF DATA BETWEEN SURVEYS

In the Labour Force Survey, one-eighth of the dwellings sampled in the previous month are replaced, in the current month, by a new set of dwellings from the same geographic area. The seven-eighth overlap between the dwellings selected in consecutive months maintains continuity within the population survey sample and enables more reliable measurement of change in the labour force characteristics of the population than would be possible if a new sample was introduced each month.

The matching of respondents who report in consecutive months enables analysis of the transition of individuals between the different labour force status classifications, referred to as the **matched sample**. The transition counts between the different labour force status classifications from one point in time to the next are commonly referred to as **gross flows**.

CAUTION

The figures presented in gross flows are presented in original terms only and do not align with published labour force estimates. The gross flows figures are derived from the matched sample between consecutive months, which after taking account of the sample rotation and varying non-response in each month is approximately 80 per cent of the sample.

The section titled **Quality of gross flows figures** discusses this and other properties of the gross flows figures, which should be kept in mind when using these data for analysis.

USING GROSS FLOWS FIGURES TO ANALYSE MOVEMENTS IN EMPLOYMENT

Gross flows figures can assist in understanding the movements in labour force status. For example, in the March 2009 labour force estimates, the number of employed persons, in trend terms, decreased 5,000 persons; comprised of a decrease in full-time employment of 14,600 persons, that was partly offset by an increase in part-time employment of 9,700 persons. However, in original terms, the number of employed persons decreased 1,500 persons; comprised of a decrease in full-time employment of 123,200 persons and an increase in part-time employment of 121,700 persons.

When attempting to interpret the decrease in full-time employment the following questions arise regarding the population:

- Are people moving from full-time employment into part-time employment?
- Are they moving from employment to unemployment?
- Are they moving from employment out of the labour force?

Movement between full-time employment and part-time employment

Referring to the following table one can observe, in original terms, the following counts for

transitions between full-time employment and part-time employment:

- 250,000 persons employed part-time in February 2009 were employed full-time in March 2009;
- 311,000 persons employed full-time in February 2009 were employed part-time in March 2009; and
- a net decrease from the matched sample of 61,000 persons (311,000 minus 250,000 persons) from full-time employment to part-time employment.

In the matched sample, there were considerably more persons who moved from full-time employment to part-time employment than in the other direction. Therefore, one can observe, from the gross flows figures that a contributing factor to the March 2009 increase in part-time employment was the net transition of persons from full-time employment to part-time employment.

Movement between employment and unemployment

Referring to the following table one can observe, in original terms, the following counts for transitions between employment and unemployment:

- 119,000 persons unemployed in February 2009 were employed in March 2009
- 85,000 persons employed in February 2009 were unemployed in March 2009; and
- a net increase from the matched sample of 34,000 persons (119,000 minus 85,000 persons) from unemployed to being employed.

Therefore, one can observe from the matched sample, that there were more persons who moved from unemployment to employment than in the other direction.

Movement between employment and persons not in the labour force

Referring to the following table one can observe, in original terms, the following counts for transitions between employment and persons not in the labour force:

- 180,000 persons not in the labour force in February 2009 were employed in March 2009;
- 203,000 persons employed in February 2009 were not in the labour force in March 2009; and
- a net decrease from the matched sample of 23,000 persons from employed in February 2009 to being not in the labour force.

Therefore, one can observe from the matched sample, that a proportion of the decrease in employment was due to employed persons moving directly out the labour force.

**Labour Force Status Gross Flows^(a), Matched records February 2009 and March 2009
- Original**

[illegible]

Males							
Employed full-time	3 855	142	3 997	37	4 034	42	4 075
Employed part-time	88	557	644	19	663	45	708
Employed total	3 943	698	4 641	56	4 697	87	4 784
Unemployed	38	33	71	166	236	52	289
Labour force	3 981	731	4 712	221	4 933	139	5 073
Not in the labour force	31	49	80	57	137	1 644	1 781
Matched civilian population	4 012	780	4 792	278	5 070	1 784	6 854
Females							
Employed full-time	2 015	169	2 184	10	2 194	35	2 229
Employed part-time	162	1 568	1 730	19	1 749	81	1 830
Employed total	2 177	1 737	3 914	29	3 943	116	4 059
Unemployed	16	32	48	137	185	82	267
Labour force	2 193	1 769	3 962	166	4 128	198	4 326
Not in the labour force	15	85	100	79	180	2 580	2 760
Matched civilian population	2 208	1 855	4 063	245	4 308	2 778	7 086
Persons							
Employed full-time	5 870	311	6 181	47	6 228	77	6 305
Employed part-time	250	2 125	2 374	38	2 412	126	2 538
Employed total	6 120	2 435	8 555	85	8 640	203	8 843
Unemployed	54	65	119	303	421	134	556
Labour force	6 174	2 500	8 674	387	9 061	337	9 399
Not in the labour force	46	134	180	136	317	4 224	4 541
Matched civilian population	6 220	2 634	8 855	523	9 378	4 562	13 940

(a) Gross flows figures do not match published labour force estimates. Refer to quality statements below.

QUALITY OF GROSS FLOWS FIGURES

Caution should be exercised when analysing these gross flows data. First, as noted above, the figures presented sum to approximately 80 per cent of the population values as the gross flows data are based on the matched sample only.

Second, there is no adjustment applied to account for changes due to seasonal patterns (referred to commonly as **seasonal adjustment**). The gross flows figures are based on original data. Therefore, residual noise, seasonal patterns and irregular influences in the series may lead to misleading conclusions where there is a strong seasonal pattern. Therefore, gross flows figures need to be interpreted in the context of the seasonal nature of the labour force.

Third, the relative sizes of each transition class are subject to bias due to the matched sample being a non-representative sample.

Bias in the estimates due to non-representative sample

The Labour Force Survey sample selection procedures aim to ensure that the individuals surveyed at each time point are a representative sample of the population, and the survey weighting procedure will largely correct for any imbalances in the sample.

The mobility of the population and non-response, in either or both consecutive surveys, means that about 10 per cent of persons in private dwellings, which are included in the sample in successive months, cannot be matched. The matched sample will tend to under-represent particular types of individuals, for example those who move between houses.

The relative size of the transition classes in the gross flows data will be subject to bias if the labour characteristics of those individuals under-represented differ from characteristics of the remainder. Differences in the labour characteristics of those under-represented appears quite related likely, since, for example, moving house can be related to a transition in labour force status.

CONCLUSION

Gross flows figures can assist in understanding the movements in labour force estimates. The figures presented in gross flows do not align with published labour force estimates and should only be used to interpret movements in published estimates.

FUTURE DEVELOPMENT

The ABS is investigating alternative methods for producing gross flows data which reduce the potential bias on the figures, therefore reducing some of the quality concerns of gross flows data.

About this Release

Summary results of the monthly Labour Force Survey containing estimates of employed and unemployed persons classified by sex, full-time/part-time status, states and territories and some age groups; and persons not in the labour force.

Explanatory Notes

Explanatory Notes

EXPLANATORY NOTES

INTRODUCTION

1 This publication contains estimates of the civilian labour force derived from the Labour Force Survey component of the Monthly Population Survey. The full time series for estimates from this publication are also available electronically. More detailed estimates are

released one week after this publication in various electronic formats - see **Labour Force, Australia, Detailed - Electronic Delivery** (cat. no. 6291.0.55.001) and **Labour Force, Australia, Detailed, Quarterly** (cat. no. 6291.0.55.003).

CONCEPTS, SOURCES AND METHODS

2 The conceptual framework used in Australia's Labour Force Survey aligns closely with the standards and guidelines set out in Resolutions of International Conferences of Labour Statisticians. Descriptions of the underlying concepts and structure of Australia's labour force statistics, and the sources and methods used in compiling the estimates, are presented in **Labour Statistics: Concepts, Sources and Methods** (cat. no. 6102.0.55.001) which is available on the ABS website <<https://www.abs.gov.au>> .

LABOUR FORCE SURVEY

3 The Labour Force Survey is based on a multi-stage area sample of private dwellings (currently about 22,800 houses, flats, etc.) and a list sample of non-private dwellings (hotels, motels, etc.), and covers about 0.24% of the population of Australia. Information is obtained from the occupants of selected dwellings by specially trained interviewers.

4 The information is collected using computer-assisted interviewing (CAI), whereby responses are recorded directly onto an electronic questionnaire on a notebook computer. The CAI method was progressively implemented from October 2003 to August 2004, replacing the 'pen and paper' method previously used.

5 Households selected for the Labour Force Survey are interviewed each month for eight months, with one-eighth of the sample being replaced each month. The first interview is conducted face-to-face. Subsequent interviews are conducted by telephone (if acceptable to the respondent).

6 The interviews are generally conducted during the two weeks beginning on the Sunday between the 5th and 11th of each month. The information obtained relates to the week before the interview (i.e. the reference week). Each year, to deal with operational difficulties involved with collecting and processing the Labour Force Survey around the Christmas and New Year holiday period, interviews for December start four weeks after November interviews start, and January interviews start five weeks after December interviews start. As a result, January interviewing may commence as early as the 7th or as late as the 13th, depending on the year. Occasionally, circumstances that present significant operational difficulties for survey collection can result in a change to the normal pattern for the start of interviewing.

7 Estimates from the Labour Force Survey are published first in this publication 32 days after the commencement of interviews for that month, with the exception of estimates for each December which are published 39 days after the commencement of interviews.

SCOPE OF SURVEY

8 The Labour Force Survey includes all persons aged 15 years and over except members of the permanent defence forces, certain diplomatic personnel of overseas governments customarily excluded from census and estimated population counts, overseas residents in Australia, and members of non-Australian defence forces (and their dependants) stationed in Australia.

COVERAGE

9 In the Labour Force Survey, coverage rules are applied which aim to ensure that each person is associated with only one dwelling, and hence has only one chance of selection. The coverage rules are necessarily a balance between theoretical and operational considerations. Nevertheless, the chance of a person being enumerated at two separate dwellings in the survey is considered to be negligible.

POPULATION BENCHMARKS

10 Labour Force Survey estimates are calculated in such a way as to add up to independent estimates of the civilian population aged 15 years and over (population benchmarks). These population benchmarks are projections of the most recently released quarterly Estimated Resident Population (ERP) data. For information on the methodology used to produce the ERP see **Australian Demographic Statistics** (cat. no. 3101.0). To create the population benchmarks for the Labour Force Survey, the most recently released quarterly ERP estimates are projected forward one quarter past the period for which they are required. The projection is based on the historical pattern of each population component - births, deaths, interstate migration and overseas migration. By projecting one quarter past that needed for the current population benchmarks, demographic changes are smoothed in, thereby making them less noticeable in the population benchmarks.

11 The ERP series are revised annually in the March quarter issue of **Australian Demographic Statistics** (cat. no. 3101.0), released in September each year, to incorporate more up to date information available for the population components. The revised ERP estimates are used to update the quarterly population projections used in creating the Labour Force Survey population benchmarks. Benchmarks already used in producing Labour Force Survey estimates are not updated. A process of smoothing is used in the creation of population benchmarks to reduce the effect of these annual revisions to ERP estimates on the Labour Force Survey population benchmarks.

12 Every five years the ERP series are revised to incorporate additional information available from the latest Census of Population and Housing. Following the incorporation of Census information, the ERP series prior to the latest Census are final and subject to no further revision. Labour Force Survey population benchmarks, and the estimates, are revised following this 5-yearly revision in the ERP. From the February 2009 issue of this publication, labour force estimates have been compiled using population benchmarks based on the results of the 2006 Census of Population and Housing. Revisions were made in the February 2009 issue to historical labour force estimates from June 2001 to January 2009.

ESTIMATION METHOD

13 The estimation method used in the Labour Force Survey is Composite Estimation, which was introduced in May 2007. Composite Estimation combines data collected in the previous six months with current month's data to produce the current month's estimates, thereby exploiting the high correlation between overlapping samples across months in the Labour Force Survey. The Composite Estimator combines the previous and current months' data by applying different factors according to length of time in the survey. After these factors are applied, the seven months of data are weighted to align with current month population benchmarks. For details see **Information Paper: Forthcoming Changes to Labour Force Statistics, 2007** (cat. no. 6292.0).

COMPARABILITY OF SERIES

14 From April 1986, the definition of employed persons was changed to include persons who worked without pay between 1 and 14 hours per week in a family business or on a farm (i.e. contributing family workers). For further information, see paragraphs 22 and 23 of the Explanatory Notes in the February 2003 issue of **Labour Force, Australia** (cat. no. 6203.0).

15 The ABS introduced telephone interviewing into the Labour Force Survey in August 1996. Implementation was phased in for each new sample group from August 1996 to February 1997. During the period of implementation, the new method produced different estimates than would have been obtained under the old methodology. The effect dissipated over the final months of implementation and was no longer discernible from February 1997. The estimates for February 1997 and onwards are directly comparable to estimates for periods prior to August 1996. For further details, see the feature article in the June 1997 issue of **Labour Force, Australia** (cat. no. 6203.0).

16 From April 2001 the Labour Force Survey has been conducted using a redesigned questionnaire containing additional data items and some minor definitional changes. The definition of unemployed persons was changed to include all persons who were waiting to start work and were available to start in the reference week. This change was introduced in February 2004, when historical unit record data were revised from April 2001 to January 2004. This revision created a small trend break at April 2001 in unemployed persons and unemployment rate series. For further details, see **Information Paper: Forthcoming Changes to Labour Force Statistics** (cat. no. 6292.0), released in December 2003.

17 Core labour force series were revised in April 2001 for the period April 1986 to March 2001 for the remaining definitional changes introduced with the redesigned questionnaire, to reduce the impact of the changes on labour force series. For further details, see **Information Paper: Implementing the Redesigned Labour Force Survey Questionnaire** (cat. no. 6295.0) and **Information Paper: Questionnaires Used in the Labour Force Survey** (cat. no. 6232.0).

18 In May 2007, an improved method of estimation, known as composite estimation, was introduced into the Labour Force Survey. In introducing this change the ABS revised unit record data from April 2001 to April 2007 based on the new estimation method. While estimates for periods prior to April 2001 are unrevised and were compiled using a different estimation method, no trend break was identified in the employed persons series. Also, no change was identified in the trend breaks in the unemployed persons and unemployment rate series which arose with the introduction of a redesigned survey form in April 2001 (as noted above in paragraph 16). For further details, see **Information Paper: Forthcoming Changes to Labour Force Statistics, 2007** (cat. no. 6292.0), released on 21 May 2007.

SURVEY SAMPLE REDESIGN

19 The Labour Force Survey sample has been reselected using information collected in the 2006 Census of Population and Housing.

20 The bulk of the new sample was phased in over the period November 2007 to June 2008, with one-eighth of this portion of the sample being introduced every month. The remainder of the sample (about 20% of the total), which covers less settled areas of Australia and non-private dwellings was rotated in full for New South Wales, Western Australia, Northern Territory and Australian Capital Territory in March 2008, and for Victoria,

Queensland, South Australia and Tasmania in April 2008. Such a pattern of implementation means that any changes to labour force estimates due to differences between the two samples, or any other influences, were spread over the eight months.

21 For further details, see **Information Paper: Labour Force Survey Sample Design** (cat. no. 6269.0), released on 28 November 2007.

RELIABILITY OF ESTIMATES

22 Two types of error are possible in an estimate based on a sample survey: sampling error and non-sampling error.

23 Sampling error occurs because a sample, rather than the entire population, is surveyed. One measure of the likely difference resulting from not including all dwellings in the survey is given by the standard error. There are about two chances in three that a sample estimate will differ by less than one standard error from the figure that would have been obtained if all dwellings had been included in the survey, and about nineteen chances in twenty that the difference will be less than two standard errors. Standard errors of key estimates for the latest month and of movements since the previous month of these estimates are shown in the standard errors section of this publication. Standard errors for other estimates and other movements may be calculated by using the spreadsheet contained in **Labour Force Survey Standard Errors, Data Cube** (cat. no. 6298.0.55.001) which is available free of charge on the ABS website <<https://www.abs.gov.au>>.

24 Non-sampling error arises from inaccuracies in collecting, recording and processing the data. Every effort is made to minimise reporting error by the careful design of questionnaires, intensive training and supervision of interviewers, and efficient data processing procedures. Non-sampling error also arises because information cannot be obtained from all persons selected in the survey. The Labour Force Survey receives a high level of co-operation from individuals in selected dwellings, with the average response rate over the last year being 97%. See Glossary for definition of response rate.

SEASONAL ADJUSTMENT AND TREND ESTIMATION

25 Seasonal adjustment is a means of removing the estimated effects of normal seasonal variation from the series so that the effects of other influences on the series can be more clearly recognised. Seasonal adjustment does not aim to remove the irregular or non-seasonal influences which may be present in any particular month. This means that month-to-month movements of the seasonally adjusted estimates may not be reliable indicators of trend behaviour.

26 The Labour Force Survey uses the concurrent seasonal adjustment method to derive seasonal factors. Concurrent seasonal adjustment uses data up to the current month to estimate seasonal factors for the current and all previous months. This process can result in revisions each month to estimates for earlier periods. However, in most instances, the only noticeable revisions will be to the seasonally adjusted estimates for the previous month and one year prior to the current month.

27 The revision properties of the seasonally adjusted and trend estimates can be improved by the use of Autoregressive Integrated Moving Average (ARIMA) modelling. ARIMA modelling relies on the characteristics of the series being analysed to project future period data. The projected values are temporary, intermediate values, that are only used internally to improve the estimation of the seasonal factors. The projected data do not affect the

original estimates and are discarded at the end of the seasonal adjustment process. The Labour Force Survey uses an ARIMA model for 95% of the individual time series. The ARIMA model is assessed as part of the annual reanalysis. For further details, see the feature article in **Australian Economic Indicators, Oct 2004** (cat. no. 1350.0).

28 Seasonal adjustment is able to remove the effect of events which occur at the same time in the survey every year. However, there are some events, like holidays, which are not always at the same time in the survey cycle or which are not at the same time across Australia. The effects of these types of events on Labour Force Survey estimates cannot in all cases be removed, because the pattern of their effects cannot be determined. However, two events which are adjusted for in the seasonally adjusted series are the January interview start date and the timing of Easter. For further details, see **Information Paper: Forthcoming Changes to Labour Force Statistics** (cat. no. 6292.0) released in December 2003.

29 While seasonal factors for the complete time series are estimated each month, they will continue to be reviewed annually at a more detailed level to take into account each additional year's original data. This annual review will not normally result in significant changes to published estimates. The review is usually conducted in February each year with the results released in the February issue of this publication.

30 The smoothing of seasonally adjusted series to produce 'trend' series reduces the impact of the irregular component of the seasonally adjusted series. These trend estimates are derived by applying a 13-term Henderson-weighted moving average to all months except the last six. The last six monthly trend estimates are obtained by applying surrogates of the Henderson average to the seasonally adjusted series. Trend estimates are used to analyse the underlying behaviour of a series over time.

31 While this smoothing technique enables estimates to be produced for the latest month, it does result in revisions in addition to those caused by the revision of seasonally adjusted estimates. Generally, revisions due to the use of surrogates of the Henderson average become smaller, and after three months have a negligible impact on the series.

32 Trend estimates are published for the Northern Territory in table 10 and for the Australian Capital Territory in table 11. Unadjusted series for the two territories have shown, historically, a high degree of variability, which can lead to considerable revisions to the seasonally adjusted estimates each month when seasonal factors are estimated. For this reason, seasonally adjusted estimates are not currently published for the two Territories. In addition, caution should be exercised in the interpretation of trend estimates for the two territories, particularly for the three most recent months, where revisions may be relatively large.

33 For further information, see **A Guide to Interpreting Time Series - Monitoring Trends** (cat. no. 1349.0) or contact the Assistant Director, Time Series Analysis on (02) 6252 6345 or email time.series.analysis@abs.gov.au.

RELATED PUBLICATIONS

34 Users may also wish to refer to **Australian Labour Market Statistics** (cat. no. 6105.0). This publication contains additional tables and a detailed list of related publications. For further information about this publication, please contact the Assistant Director, Labour Market Statistics on (02) 6252 7636.

35 ABS Information about the labour market can be found on the Labour theme page on the ABS website <<https://www.abs.gov.au>>(Themes), or from ABS Bookshops.

36 Information about current publications and other products released by the ABS is available from the statistics page on the ABS website. The ABS also issues a daily release advice on the website, Upcoming Product Releases which details products to be released in the week ahead.

DATA AVAILABLE ON REQUEST

37 As well as the statistics included in this and related publications, the ABS may have other relevant data available. Inquiries should be made to the Labour Force contact officer on (02) 6252 6525, email labourforce@abs.gov.au or to any ABS office.

EFFECTS OF ROUNDING

38 Estimates have been rounded and discrepancies may occur between sums of the component items and totals.

39 Estimates of movement shown in this publication are obtained by taking the difference of unrounded estimates. The movement estimate is then rounded to one decimal place. Therefore where a discrepancy occurs between the reported movement and the difference of the rounded estimates, the reported movement will be more accurate.

SYMBOLS AND ABBREVIATIONS

40 SYMBOLS AND ABBREVIATIONS

'000 thousands
ABS Australian Bureau of Statistics
CAI computer assisted interviewing
cat. no. catalogue number
ERP estimated resident population
f/t full-time
LFS Labour Force Survey
p/t part-time
pts percentage points
Seas adj. seasonally adjusted
TAFE Technical and Further Education

Glossary

GLOSSARY

Actively looking for work

Includes writing, telephoning or applying in person to an employer for work; answering an advertisement for a job; checking factory noticeboards or the touchscreens at the Centrelink offices; being registered with Centrelink as a jobseeker; checking or registering with any

other employment agency; advertising or tendering for work; and contacting friends or relatives.

Attending full-time education

Persons aged 15-24 years enrolled at secondary or high school or enrolled as a full-time student at a Technical and Further Education (TAFE) college, university, or other educational institution in the reference week.

Attending school

Persons aged 15-19 years enrolled at secondary or high school in the reference week.

Attending tertiary educational institution full time

Persons aged 15-24 years enrolled full time at a TAFE college, university, or other educational institution in the reference week, except those persons aged 15-19 years who were still attending school.

Civilian population aged 15 years and over

All usual residents of Australia aged 15 years and over except members of the permanent defence forces, certain diplomatic personnel of overseas governments customarily excluded from census and estimated population counts, overseas residents in Australia, and members of non-Australian defence forces (and their dependants) stationed in Australia.

Composite Estimation

The estimation methodology used in the Labour Force Survey. Composite Estimation uses sample responses from nearby months as well as from the reference month to derive estimates for the reference month. This approach achieves gains in efficiency by exploiting the high similarity between the responses provided by the same respondent in previous months. For details see **Information Paper: Forthcoming Changes to Labour Force Statistics, 2007** (cat. no. 6292.0).

Employed

All persons aged 15 years and over who, during the reference week:

- worked for one hour or more for pay, profit, commission or payment in kind in a job or business, or on a farm (comprising employees, employers and own account workers); or
- worked for one hour or more without pay in a family business or on a farm (i.e. contributing family workers); or
- were employees who had a job but were not at work and were:
 - away from work for less than four weeks up to the end of the reference week; or
 - away from work for more than four weeks up to the end of the reference week and received pay for some or all of the four week period to the end of the reference week; or
 - away from work as a standard work or shift arrangement; or
 - on strike or locked out; or
 - on workers' compensation and expected to return to their job; or
- were employers or own account workers, who had a job, business or farm, but were not at work.

Employment to population ratio

For any group, the number of employed persons expressed as a percentage of the civilian population in the same group.

Full-time workers

Employed persons who usually worked 35 hours or more a week (in all jobs) and those who, although usually working less than 35 hours a week, worked 35 hours or more during the reference week.

Labour force

For any group, persons who were employed or unemployed, as defined.

Labour force status

A classification of the civilian population aged 15 years and over into employed, unemployed or not in the labour force, as defined. The definitions conform closely to the international standard definitions adopted by the International Conferences of Labour Statisticians.

Not in labour force

Persons who were not in the categories employed or unemployed as defined.

Participation rate

For any group, the labour force expressed as a percentage of the civilian population aged 15 years and over in the same group.

Part-time workers

Employed persons who usually worked less than 35 hours a week (in all jobs) and either did so during the reference week, or were not at work in the reference week.

Response rate

The number of fully responding dwellings expressed as a percentage of the total number of dwellings excluding sample loss. Examples of sample loss include: dwellings where all persons are out of scope and/or coverage; vacant dwellings; dwellings under construction; dwellings converted to non-dwellings; derelict dwellings; and demolished dwellings.

Seasonally adjusted series

A time series of estimates with the estimated effects of normal seasonal variation removed. See Explanatory Notes 25 to 29 for more detail.

Trend series

A smoothed seasonally adjusted series of estimates. See Explanatory Notes 30 to 33 for more detail.

Unemployed

Persons aged 15 years and over who were not employed during the reference week, and:

- had actively looked for full-time or part-time work at any time in the four weeks up to the end of the reference week and were available for work in the reference week; or
- were waiting to start a new job within four weeks from the end of the reference week and could have started in the reference week if the job had been available then.

Unemployed looking for full-time work

Unemployed persons who:

- actively looked for full-time work; or
- were waiting to start a new full-time job.

Unemployed looking for part-time work

Unemployed persons who:

- actively looked for part-time work only; or
- were waiting to start a new part-time job.

Unemployment rate

For any group, the number of unemployed persons expressed as a percentage of the labour force in the same group.

Unemployment to population ratio

For any group, the number of unemployed persons expressed as a percentage of the civilian population in the same group.

Quality Declaration - Summary

INSTITUTIONAL ENVIRONMENT

Labour Force statistics are compiled from the Labour Force Survey which is conducted each month throughout Australia as part of the Australian Bureau of Statistics (ABS) household survey program. For information on the institutional environment of the ABS, including the legislative obligations of the ABS, financing and governance arrangements, and mechanisms for scrutiny of ABS operations, please see ABS Institutional Environment.

RELEVANCE

The Labour Force Survey provides monthly information about the labour market activity of Australia's resident civilian population aged 15 years and over. The Labour Force Survey is designed to primarily provide estimates of employment and unemployment for the whole of Australia and, secondarily, for each state and territory.

TIMELINESS

The Labour Force Survey enumeration begins on the Sunday between the 5th and 11th of the month, except for the Christmas and New Year holiday period. In December enumerations starts between the 3rd and 9th (4 weeks after November enumeration begins). In January enumeration starts between the 7th and 13th (5 weeks after December enumeration begins).

Key estimates from the Labour Force Survey are published in two stages. The first, *Labour Force, Australia* (cat. no. 6202.0), is released 32 days after the commencement of enumeration for the month, with the exception of estimates for December which are published 39 days after the commencement of enumeration.

The second stage, which includes detailed data that were not part of the first stage, are published in *Labour Force, Australia, Detailed - Electronic Delivery* (cat. no. 6291.0.55.001) and *Labour Force, Australia, Detailed, Quarterly* (cat. no. 6291.0.55.003). The second stage is released 7 days after the first stage.

ACCURACY

The Labour Force Survey is based on a sample of private dwellings (approximately 22,800 houses, flats etc) and non-private dwellings, such as hotels and motels. The sample covers about 0.24% of the Australian Population. The Labour Force Survey is designed primarily to provide estimates of key labour force statistics for the whole of Australia and, secondarily, for each state and territory.

Two types of error are possible in an estimate based on a sample survey: non-sampling error and sampling error.

Non-sampling error arises from inaccuracies in collecting, recording and processing the data. Every effort is made to minimise reporting error by the careful design of questionnaires, intensive training and supervision of interviewers, and efficient data processing procedures. Non-sampling error also arises because information cannot be obtained from all persons selected in the survey. The Labour Force Survey receives a high level of cooperation, with an average response rate for the last year being 97%.

Sampling error occurs because a sample, rather than the entire population, is surveyed. One measure of the likely difference resulting from not including all dwellings in the survey is given by the standard error. There are about two chances in three that a sample estimate will differ by less than one standard error from the figure that would have been obtained if all dwellings had been included in the survey, and about nineteen chances in twenty that the difference will be less than two standard errors.

Standard errors of key estimates and movements since the previous month are available in *Labour Force, Australia* (cat. no. 6202.0). The standard error of other estimates and movements may be calculated by using the spreadsheet contained in *Labour Force Survey Standard Errors, Data Cube* (cat. no. 6298.0.55.001).

COHERENCE

The ABS has been conducting the Labour Force Survey each month since February 1978. While seeking to provide a high degree of consistency and comparability over time by minimising changes to the survey, sound survey practice requires careful and continuing maintenance and development to maintain the integrity of the data and the efficiency of the collection.

The changes which have been made to the Labour Force Survey have included changes in sampling methods, estimation methods, concepts, data item definitions, classifications, and time series analysis techniques. In introducing these changes the ABS has generally revised previous estimates to ensure consistency and coherence with current estimates. For a full list of changes made to the Labour Force Survey see Chapter 20 in *Labour Statistics: Concepts, Sources and Methods* (cat. no. 6102.0.55.001).

INTERPRETABILITY

The key estimates from the Labour Force Survey are available as original, seasonally adjusted and trend series. Seasonal adjustment is a means of removing the effects of normal seasonal variation from the series so other influences on the series can be more clearly recognised. Seasonal adjustment does not aim to remove the irregular influences which may be present and therefore month-to-month movements may not be reliable indicators of underlying behaviour. To assist in interpreting the underlying behaviour, the ABS produces the trend series by smoothing the seasonally adjusted series to reduce the impact of the irregular component. For further information, see *A Guide to Interpreting Time Series - Monitoring Trends* (cat. no. 1349.0).

Further information on the terminology and other technical aspects associated with statistics from the Labour Force Survey can be found in the publication *Labour Force, Australia* (cat. no. 6202.0), which contains detailed Explanatory Notes, Standard Error information and a Glossary.

ACCESSIBILITY

Please see the Related Information tab for the list of products that are available from this collection.

What If

WHAT IF...? REVISIONS TO TREND ESTIMATES

EFFECT OF NEW SEASONALLY ADJUSTED ESTIMATES ON TREND ESTIMATES

TREND REVISIONS

Each time new seasonally adjusted estimates become available, trend estimates are revised. This revision is a combined result of the concurrent seasonal adjustment process and the application of surrogates of the Henderson average to the seasonally adjusted

series (see paragraphs 25 to 33 of the Explanatory Notes).

The examples in the tables below show two illustrative scenarios and the consequent revisions to previous trend estimates of employment and the unemployment rate. The revisions in the scenarios below are only due to the use of surrogates of the Henderson average, as the impact of revision of the seasonally adjusted estimates can not be estimated in advance.

1 The April seasonally adjusted estimate is **higher** than the March estimate by:

0.24% for employment

2.10% for the unemployment rate

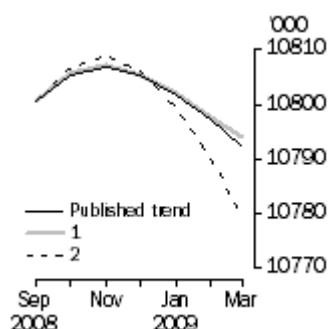
2 The April seasonally adjusted estimate is **lower** than the March estimate by:

0.24% for employment

2.10% for the unemployment rate

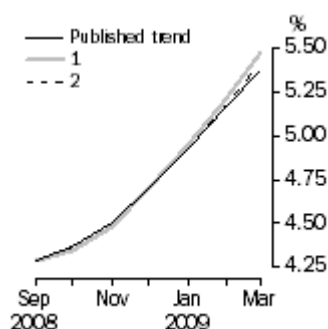
The percentage changes of 0.24% and 2.10% were chosen because they represent the average absolute monthly percentage changes in employment and the unemployment rate respectively.

Employment



WHAT IF NEXT MONTH'S SEASONALLY ADJUSTED ESTIMATE IS:			
	Trend as published	(1) 10 797.7 i.e. rises by 0.24%	(2) 10 746.0 i.e. falls by 0.24%
2008			
December	10 805.1	10 805.2	10 806.1
2009			
January	10 801.8	10 801.8	10 799.5
February	10 797.2	10 797.7	10 790.1
March	10 792.3	10 793.8	10 779.4

Unemployment Rate



WHAT IF NEXT MONTH'S SEASONALLY ADJUSTED ESTIMATE IS:			
	Trend as published	(1) 5.8 i.e. rises by 2.10%	(2) 5.6 i.e. falls by 2.10%
2008			
December	4.7	4.7	4.7
2009			
January	4.9	4.9	4.9
February	5.2	5.2	5.2
March	5.4	5.5	5.4

Standard Errors

STANDARD ERRORS

STANDARD ERRORS

The estimates in this publication are based on information gained from the occupants of a sample survey of dwellings. Because the entire population is not surveyed, the published estimates are subject to sampling error. The most common way of quantifying such sampling error is to calculate the standard error for the published estimate or statistic. For more information, see paragraph 23 of the Explanatory Notes.

LEVEL ESTIMATES

To illustrate, let us say the published level estimate for employed persons aged 15-19 years is 700,000 and the associated standard error is 8,300. The standard error is then used to interpret the level estimate of 700,000. For instance, the standard error of 8,300 indicates that:

- There are approximately two chances in three that the real value falls within the range 691,700 to 708,300 (700,000 + or - 8,300)
- There are approximately nineteen chances in twenty that the real value falls within the range 683,400 to 716,600 (700,000 + or - 16,600).

The real value in this case is the result we would obtain if we could enumerate the total population.

The following table shows the standard errors for this month's level estimates.

AUSTRALIA													
NSW Vic. Qld SA WATas. NT ACT MalesFemalesPersons													
Aged 15 years and over													
Employed													
	Full time	'000	23.2	23.0	17.4	7.7	11.1	3.1	4.3	2.7	30.2	21.6	36.7
	Part time	'000	16.0	14.7	11.3	5.5	7.8	2.3	1.4	1.7	12.3	19.4	23.9
	Total	'000	25.6	28.1	19.8	8.8	12.3	3.7	5.1	2.8	32.9	30.2	41.7
Unemployed													
	Looking for f/t work	'000	10.8	8.2	6.9	3.2	4.1	1.2	0.8	0.8	11.9	9.5	15.4
	Looking for p/t work	'000	7.1	5.4	4.3	2.4	2.8	0.7	0.3	0.8	6.2	8.0	10.2
	Total	'000	13.0	9.9	7.9	3.8	5.0	1.3	0.9	1.2	13.5	12.5	18.6
Labour force		'000	26.0	29.0	20.3	9.0	12.4	3.7	5.2	2.9	33.8	31.2	42.6
Not in labour force		'000	24.0	26.4	17.2	8.0	11.6	3.5	3.9	2.6	27.5	32.7	38.7
Unemployment rate													
	Looking for f/t work	pts	0.4	0.4	0.4	0.5	0.5	0.7	0.8	0.5	0.2	0.3	0.2
	Looking for p/t work	pts	0.7	0.6	0.6	0.9	0.8	0.8	1.3	1.6	0.6	0.3	0.3
	Total	pts	0.4	0.3	0.3	0.4	0.4	0.5	0.7	0.6	0.2	0.2	0.2
Participation rate		pts	0.5	0.7	0.6	0.7	0.7	0.9	3.2	1.0	0.4	0.4	0.2
Aged 15-19 years													
Employed													
	Full time	'000	3.9	2.9	3.2	1.3	2.1	0.6	0.4	0.5	5.2	4.2	6.2
	Part time	'000	5.2	4.8	4.3	1.9	2.6	0.8	0.4	0.7	6.2	7.0	8.9
	Total	'000	6.2	5.4	5.4	2.2	3.4	1.0	0.6	0.8	7.6	7.7	10.7
Unemployed													
	Looking for f/t work	'000	3.9	2.8	3.0	0.9	1.6	0.5	0.3	0.2	4.6	3.6	5.8

Looking for p/t work	'000	4.4	3.2	2.6	1.3	1.4	0.4	0.2	0.5	4.1	4.6	6.2
Total	'000	6.0	4.4	4.1	1.5	2.2	0.6	0.4	0.5	6.2	5.8	8.5
Labour force	'000	7.1	6.0	5.9	2.4	3.7	1.0	0.7	0.9	8.4	8.4	11.7
Not in labour force	'000	9.2	7.4	5.4	2.8	3.8	1.1	0.8	1.0	9.4	8.8	13.1
Unemployment rate												
Looking for f/t work	pts	4.2	5.1	3.7	4.3	4.1	6.6	5.5	5.2	2.3	3.2	1.9
Looking for p/t work	pts	2.5	2.1	2.0	2.9	2.3	3.1	4.4	4.5	1.6	1.3	1.0
Total	pts	2.3	2.1	1.9	2.5	2.1	3.2	3.7	3.5	1.4	1.3	1.0
Participation rate	pts	1.5	1.7	1.9	2.3	2.4	3.0	4.2	3.7	1.1	1.2	0.8
Unemployment to population ratio - looking for f/t work	pts	0.8	0.8	1.0	0.8	1.1	1.5	1.9	1.0	0.6	0.5	0.4

MOVEMENT ESTIMATES

The following example illustrates how to use the standard error to interpret a movement estimate. Let us say that one month the published level estimate for females employed part-time in Australia is 1,890,000; the next month the published level estimate is 1,900,000 and the associated standard error for the movement estimate is 9,500. The standard error is then used to interpret the published movement estimate of 10,000. For instance, the standard error of 9,500 indicates that:

- There are approximately two chances in three that the real movement between the two months falls within the range 500 to 19,500 (10,000 + or - 9,500)
- There are approximately nineteen chances in twenty that the real movement falls within the range -9,000 to 29,000 (10,000 + or - 19,000).

The following table shows the standard errors for this month's movement estimates.

AUSTRALIA													
NSW Vic. Qld SA WATas. NT ACT MalesFemalesPersons													
Aged 15 years and over													
Employed													
	Full time	'000	15.6	12.4	11.3	4.4	7.0	2.0	1.4	1.9	19.8	14.5	25.0
	Part time	'000	9.8	8.3	6.9	3.1	4.6	1.4	0.7	1.1	8.8	13.1	15.7
	Total	'000	18.5	15.0	14.9	6.1	8.8	2.5	1.6	2.2	21.6	19.6	30.3
Unemployed													
	Looking for f/t work	'000	10.8	8.4	7.7	3.2	4.2	1.2	0.6	0.9	12.2	10.1	16.0
	Looking for p/t work	'000	7.1	5.3	4.5	2.2	3.0	0.8	0.3	0.9	6.3	8.2	10.4
	Total	'000	13.1	11.0	9.0	3.9	5.2	1.4	0.7	1.3	13.8	12.8	19.1
Labour force		'000	19.3	15.5	15.7	6.5	9.1	2.5	1.6	2.2	22.3	20.3	31.4
Not in labour force		'000	17.5	14.4	12.9	5.7	7.7	2.4	1.3	2.1	16.9	21.2	28.0
Unemployment rate													
	Looking for f/t work	pts	0.4	0.4	0.4	0.6	0.5	0.7	0.8	0.5	0.2	0.3	0.2
	Looking for p/t work	pts	0.7	0.6	0.6	0.9	0.8	1.0	1.4	1.5	0.6	0.3	0.3
	Total	pts	0.4	0.4	0.3	0.5	0.4	0.6	0.7	0.6	0.2	0.2	0.2
Participation rate		pts	0.3	0.4	0.5	0.5	0.5	0.6	1.0	0.8	0.3	0.2	0.2
Aged 15-19 years													
Employed													
	Full time	'000	3.0	2.2	2.6	1.0	1.8	0.5	0.3	0.4	4.2	3.4	4.9
	Part time	'000	4.1	3.5	3.3	1.4	2.1	0.6	0.3	0.6	4.7	5.3	6.6
	Total	'000	4.8	3.9	3.9	1.6	2.6	0.7	0.4	0.7	5.8	5.8	7.8
Unemployed													
	Looking for f/t work	'000	4.1	3.2	3.5	1.3	1.7	0.5	0.3	0.3	5.1	4.0	6.5
	Looking for p/t work	'000	4.5	3.2	2.8	1.3	1.5	0.5	0.1	0.5	4.3	4.7	6.4
	Total	'000	6.1	4.4	4.4	1.9	2.3	0.7	0.3	0.6	6.6	6.0	8.8
Labour force		'000	5.3	4.3	4.2	1.8	2.7	0.8	0.5	0.7	6.3	6.3	8.5

Not in labour force	'000	5.8	4.7	3.7	1.8	2.5	0.8	0.6	0.7	6.7	6.4	8.7
Unemployment rate												
Looking for f/t work	pts	4.5	5.6	3.9	5.5	3.9	6.8	6.7	6.1	2.5	3.5	2.0
Looking for p/t work	pts	2.6	2.2	2.1	3.1	2.3	3.6	4.1	4.3	1.7	1.4	1.1
Total	pts	2.4	2.3	2.1	2.9	2.1	3.4	4.0	3.4	1.5	1.4	1.0
Participation rate	pts	1.1	1.2	1.4	1.7	1.8	2.3	2.8	2.9	0.8	0.9	0.6
Unemployment to population ratio - looking for f/t work	pts	0.9	0.9	1.1	1.3	1.1	1.5	1.6	1.2	0.7	0.6	0.4

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